Coconut production and marketing in India: A case of Chitradurga district

G. NAGARAJA AND C. BASAVAIAH

ABSTRACT
Investigation was carried out in Chitradurga district of Karnataka during the year 2007-08 on coconut production. The production can be marketed near places as well as sold at distant places. The four hundred sample size of each wholesaler, trader and retailer was selected. Cross sectional data were collected from the sampled coconut growers and market intermediaries by personal interview method with the help of pre-tested schedule. There were different channels of coconut marketing like, channel-I (farmers (individual)—consumer), channel-II (farmers (individuals)—pooling agent—consumer), and channel-II (farmers (individuals)—pooling agent—merchant broker—consumer). The paper would concentrate the coconut production and marketing of in India and Karnataka, with special reference to Chitradurga district in Karnataka.

Key words: Marketing channel, Production, Marketing cost, Coconut

INTRODUCTION
The coconut palm (Cocos nucifera L.) is known as the “tree of life” due to its multitude of uses. The coconut palm is endearingly called “Kalpavriksha” meaning the tree of heaven. Coconut is unique among horticulture crops grown in India as a source of food, drink, shelter, fibre, fuel, timber, animal food and variety of raw materials for industrial exploitation.

India is comfortably placed in respect of coconut production. Coconut farming provides employment to nearly ten million people and makes contribution nearly Rs. 70 billion to gross domestic product (GDP). Coconut is a popular plantation and is grown in more than 97 countries in the worldwide. The major producer of coconut in the world like Indonesia, Philippines, India, Srilanka Papua New Guinea and Vietnam are accounting for 80 per cent of world share.

India is one of the leading coconut producers in the world, producing 13 billion nuts per annum. Coconut is mostly cultivated in the coastal regions of the country. The states that have abundant coconut growth are Andhra Pradesh, Assam, Goa, Karnataka, Kerala, Maharashtra, Orissa, Tamil Nadu, Tripura, West Bengal, Andaman and Nicobar Islands, Lakshdweep and Pondicherry.

The coconut is not only significant in socio-cultural needs of our society, but also has gained considerable importance in the national economy as potential source of employment and income generation among the plantation crops. The country wide demand for coconuts both for edible and non-edible purpose, the adaptability of coconut palm to grow under varying soil and climatic conditions has generated keen interest among the people of even non-traditional zones in the country to plant a few saplings in their homestead gardens. The coconut palm requires a warm climate without greater diurnal variation of temperature. The ideal mean temperature is usually at 27°C and the average diurnal variation between 5°C and 7°C. The palm grows best under a well distributed rainfall between 1,300 mm and 2,300 mm throughout the year.

Objectives of the study:
– To work out the coconut production in India and Karnataka
– To work out the marketing costs, marketing channels of coconut in the study area.

To give suitable suggestions for coconut marketing in both the market.

**MATERIALS AND METHODS**

The survey was conducted in one major coconut producing district in Karnataka viz., Chitradurga, out of 6 Taluks in the districts, three Taluks were selected covering 585 villages, out of 30 villages selected comprised of 300 respondents including individuals, firms and company for the rigorous and intensive analysis of marketing.

The present study was based on primary and secondary data. The primary data were collected from coconut growers and various market intermediaries. The secondary data had been collected from annual reports of Coconut Development Board, journals, magazines, newspapers and from related published materials. Data from different websites also had been collected to analyze coconut production, productivity and marketing in India.

The obtained data were analyzed with the help of Compound Annual Growth Rate. The coconut production was analysed with the help of Compound Annual Growth Rate. For finding out the compound annual growth rate, the following formula has been used:

\[ \text{Compound annual growth rate} = \left(1 + \frac{\log A - \log B}{n} \right) \]

**RESULTS AND DISCUSSION**

The results obtained from the present investigation as well as relevant discussion have been presented under following heads:

**Coconut production in India:**

The coconut is not lonely significant in socio-cultural needs of our society, but also has gained considerable importance in the national economy as a potentional source of employment and income generation among the plantation crops.

The coconut production, area under cultivation, productivity producing along with a area of cultivation and trend in production in India are shown in Table 1. It is clear that the cultivation under coconut increased over the years. In 1999-2000 it was 1768.1 thousand hectares, which increased to 1894.57 thousand hectares in 2008-09. The production of coconut increased from 12,129 million nuts to 15,729.75 million nuts. The productivity of coconut showed a fluctuating trend, but steadily increased from 6860 nuts per hectares in 1999-2000 to 8303 nuts per hectares in 2008-09. The table also shows that the trend in the area under production of coconut has been increasing. But the productivity has fluctuating trend due to water scarcity and some other problems prevailing in the farm sector. It was predicted that the trend value would be 15,472 tonnes during the year 2014-2015. Its also shows that the Compound Annual Growth Rate for coconut production 2.63 per cent increased for 10 years.

**Major coconut producing states in India:**

The distribution of area under coconut cultivation shows that the major portion of coconut production in the country are the Western plains and Ghat regions comprising the states of Kerala, Karnataka and Maharashtrra followed by Eastern coast plain and hilly regions comprising Andhra Pradesh, Orissa, Tamil Nadu and Pondicherry. Andaman and Nicobar, Lakshadweep Island and Gujarart and the other traditional coconut growing areas. In North Eastern belts, state like Mizoram, Manipur, Nagaland and Arunachal Pradesh are also experimenting coconut cultivation successfully.

The state wise area, production and productivity of coconut in India during 2006-07 are presented in Table 2, which shows that Kerala’s contribution to total area under coconut was 870.9 thousand hectares (44.89 per cent), followed by Karnataka 401 thousand hectares (20.67 per cent), Tamil Nadu 374.6 thousand hectares (19.31 per cent) and Andhra Pradesh 105 thousand hectares (5.41 per cent), which together accounted for 90.28 per cent of the total area in the country. Kerala occupied the first position with coconut production of 6,054 million nuts, Tamil Nadu ranked second followed by Karnataka and Andhra Pradesh. Regarding coconut

<table>
<thead>
<tr>
<th>Year</th>
<th>Area (ooo) Hectares</th>
<th>Production (million nuts)</th>
<th>Productivity (Nuts/ha)</th>
<th>Trend value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999-2000</td>
<td>1768.1</td>
<td>12129.0</td>
<td>6860</td>
<td>8850</td>
</tr>
<tr>
<td>2000-2001</td>
<td>1823.91</td>
<td>12678.4</td>
<td>6951</td>
<td>9300</td>
</tr>
<tr>
<td>2001-2002</td>
<td>1932.3</td>
<td>12962.9</td>
<td>6709</td>
<td>9740</td>
</tr>
<tr>
<td>2002-2003</td>
<td>1921.8</td>
<td>12535.0</td>
<td>6523</td>
<td>10180</td>
</tr>
<tr>
<td>2003-2004</td>
<td>1933.7</td>
<td>12178.2</td>
<td>6298</td>
<td>10620</td>
</tr>
<tr>
<td>2004-2005</td>
<td>1935.0</td>
<td>12832.9</td>
<td>6632</td>
<td>11065</td>
</tr>
<tr>
<td>2005-2006</td>
<td>1946.8</td>
<td>14811.1</td>
<td>7608</td>
<td>11505</td>
</tr>
<tr>
<td>2006-2007</td>
<td>1936.8</td>
<td>15840.4</td>
<td>8179</td>
<td>11945</td>
</tr>
<tr>
<td>2007-2008</td>
<td>1903.19</td>
<td>14743.56</td>
<td>7747</td>
<td>12385</td>
</tr>
<tr>
<td>2008-2009</td>
<td>1894.57</td>
<td>15729.75</td>
<td>8303</td>
<td>12595</td>
</tr>
</tbody>
</table>

CAGR % 2.63%

Source: Annual Reports, Coconut Development Board, Kochi India
productivity Tamil Nadu, West Bengal and Andhra Pradesh were leading states, in union territory Lakshadweep and Pondicherry. Productivity in Tamil Nadu 14,495 nuts per hectare, West Bengal 14,307 nuts per hectare and Andhra Pradesh 12,629 nuts per hectares.

**Coconut production in Karnataka:**

Karnataka accounts for 15 per cent of area under coconut cultivation and 10 per cent of total production of coconut in the country. Coconut is the second largest and important horticultural crop of the Karnataka state, occupying 31 per cent of the total area under horticultural crop. The crop is grown in all the districts of the state. The total area under coconut in the state is around 3.33 lakh hectares and the annual production of coconut is 1754 million nuts. The productivity of coconut in the state is considered as lowest when compared to other neighbouring states.

Nearly 60 per cent of the coconut produced in the state is utilized as raw nuts for domestic culinary purposes, social cultural and religious purposes. About 25 per cent of the nuts are converted into edible ball copra, desiccated coconut powder and the remaining 15 per cent is utilized as tender coconut for drinking purpose. Prominently, 60–70 per cent of the arrival of coconut is exported to other states i.e. Uttar Pradesh, Punjab, Maharashtra, Rajasthan, Madhya Pradesh, Jammu & Kashmir, etc., about 60 per cent of coconut production in Karnataka is used in domestic items and remaining is dried as copra, most of the copra arriving to the markets is dispatched to other state, where the Karnataka copra is in great demand. The coconut utilized for commercial product preparation is only to the extent of 35-40 per cent, while 55-60 per cent is consumed for food and beverage purposes. Milling copra continues to be the major coconut product in Mangalore market. Where as Arisikere and Tiptur markets cater to the ball copra which is exported to North India. Maddur market is mainly trading the tender coconuts which are sent to other states for consumption of tender coconut water.

The trade in tender coconut in the state is very popular, as tender coconuts have fairly good demand in most of the cities apart from the demand from the upcountry buyers. It has been observed that along the busy state highways and national highways like Bangalore – Mysore, Bangalore – Pune, etc, temporary retail sales outlets for tender coconut have been established at different points to meet the demand of tourists and other travelers. A large number of cycle hawkers are also involved in the retail selling of tender coconuts. Tender coconuts of Tiptur Tall variety is normally used for this purpose.

The coconut production, area under cultivation, productivity, producing along with a area of cultivation and trend in production in Karnataka are shown in Table 3. It is clear that the cultivation under coconut increased over the years. In 1992-1993 it was 246.0 thousand hectares, which increased to 385.4 thousand hectares in 2004-05. The production of coconut increased from 1269.7 million nuts to 1209.6 million nuts. The productivity of coconut showed a fluctuating trend, but steadily increased from 5161 nuts per hectare in 1992-1993 to 3139 nuts per hectare in 2004-05. The table also shows that the trend in the area under production of coconut has been increasing. But the productivity has fluctuating trend due to water scarcity and some other problems prevailing in the farm sector. It also shows that the Compound Annual Growth Rate for coconut production -0.37 per cent negative growth for 10 years, CAGR for coconut productivity -4.06 per cent negative growth rate.

**Marketing of coconut:**

Marketing of coconut differs from that of other fresh fruits due to natural durability of coconuts, which are sold as fresh tender nuts as well as matured water nuts and dry nuts. Since coconut is mainly cultivated in Southern states viz., Kerala, Karnataka, Tamil Nadu and Andhra Pradesh and nominally in coastal areas of Maharashtra, Goa, Gujarat, Orissa and West Bengal etc. The marketing practices followed are more or less similar in nature. It
has been observed that they do not differ much except where the post harvest practices change on account of the form of the coconut and coconut products consumed in that area.

Coconut farmers have two channels for disposal of their coconuts:
- Direct channel
- Indirect channel

Indirect channel is the most prominent channel adopted among coconut farmers. Direct channel is very simple while the indirect channel is very complex. Based on their mode of disposal of coconuts, four types of coconut farmers have been observed. They include lesser farmer, opportune farmers and farmer adopting mixed practices. Nearly half of the coconut farmers in general and two third of marginal and small farmers in particular have been observed adopting leasing as the mode of disposal of their coconuts. The financial crises especially the need for money to redeem prior debts and to meet domestic expenses are the prime reasons for leasing coconut trees. The marginal as well as big coconut farmers with sound financial position are free from any such forces compelling them to lease coconut trees. Adoption of mixed practice for disposal of coconuts is found common among big farmers. Locational differences of the farm and differences in age and productivity of coconut trees are the reasons attributed for following mixed practices of marketing by farmers. Absence of lease holders, low productivity as well as poor protection to trees in the farm, seasonal harvesting etc. are some of the factors forcing coconut farmers to adopt mixed marketing practices.

The chart indicates that there are three identifiable entities who deal with coconut i.e., Individuals, Firms, Companies. Our survey revealed that the functioning of both the firm and companies are almost identical so we have not dealt them separately.

### Channels of coconut marketing:

The marketing channel is the media through which products are moved from the production place to consumption place. In the study area, the marketing channels were limited. The different channel through which coconut flows from the point of production to the point of consumption were identified and they are categorized in the following 3 direct channels:
- Farmers (Individuals)–Individual (Own Consumption / Self marketing)
- Farmers (Individuals)–Pooling agent–Consumer
- Farmers (Individuals)–Pooling agent–Merchant broker–Consumer

#### Farmers (Individuals)–Individual (Self-marketing):

In this channel, farmers directly sell their produce to

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**Table 3 : Area, production and productivity of coconut in Karnataka (Growth rate)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Area ‘000’ ha</th>
<th>Production million nuts</th>
<th>Productivity Nuts/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992-93</td>
<td>246.0</td>
<td>1269.7</td>
<td>5161</td>
</tr>
<tr>
<td>1993-94</td>
<td>252.9</td>
<td>1308.0</td>
<td>5172</td>
</tr>
<tr>
<td>1994-95</td>
<td>263.8</td>
<td>1364.1</td>
<td>5171</td>
</tr>
<tr>
<td>1995-96</td>
<td>278.8</td>
<td>1450.9</td>
<td>5204</td>
</tr>
<tr>
<td>1996-97</td>
<td>290.0</td>
<td>1493.0</td>
<td>5148</td>
</tr>
<tr>
<td>1997-98</td>
<td>302.4</td>
<td>1550.4</td>
<td>5127</td>
</tr>
<tr>
<td>1998-99</td>
<td>310.4</td>
<td>1611.5</td>
<td>5192</td>
</tr>
<tr>
<td>1999-2000</td>
<td>320.6</td>
<td>1670.3</td>
<td>5210</td>
</tr>
<tr>
<td>2000-01</td>
<td>333.8</td>
<td>1754.2</td>
<td>5255</td>
</tr>
<tr>
<td>2001-02</td>
<td>369.8</td>
<td>1503.6</td>
<td>4066</td>
</tr>
<tr>
<td>2002-03</td>
<td>369.8</td>
<td>1503.6</td>
<td>4066</td>
</tr>
<tr>
<td>2003-04</td>
<td>376.0</td>
<td>1529.1</td>
<td>4067</td>
</tr>
<tr>
<td>2004-05</td>
<td>385.4</td>
<td>1209.6</td>
<td>3339</td>
</tr>
</tbody>
</table>

Growth over the period
- Compound annual growth rate
- Growth over 10 year period
- Growth rate for last 10 year

Source: Directorate of Economics and Statistics, Ministry of Agriculture, Govt. of India.
Consumers at present in Karnataka's bazaar (Raithara Sante). Out of 229 growers, only 40 growers were growing coconuts for the purpose of exclusive self-marketing. Some growers always preferred to consume entire produce either periodically or regularly. Out of these 40 respondents, 5 expressed that they grew more than the requirement, but, still preferred self-marketing by utilizing excess produce for the consumption during festival occasions. Eleven respondents were of the opinion that every neighbourer is a coconut grower and the produce is limited in quantity and un-economical to put some other channel of distribution. Only one respondent was of the view that the pooling agents never turned up and paid the lucrative price for the small quantity, hence dependent on this type of marketing.

**Farmers (Individuals)–Pooling Agent–Consumer:**

In this channel, the farmer himself took the produce directly to the terminal markets and sold their produce to pooling agent as there were not other intermediaries to undertake assembling and bulk transport of coconut. Out of 229 coconut farmers, 114 farmers were growing coconuts for selling it to outsiders, as they did not require entire production for their own use. In other words, they just grew coconuts with an intention of marketing the same to a needy person who comes to the door steps of the grower. The growers in this category were purely a merchant-type who cultivated the farm on commercial basis and earned profits by selling the produce to the pooling agents who in turn sold to consumers. Our survey revealed that the term consumer includes coconut consumers, dehusking/fibering units, oil extraction and desiccated powder units. Further, it revealed that 35 growers were not only growing coconuts on their own farms for the purpose of marketing the produce but also growing on adjacent leased lands.

**Farmers (Individuals)–Pooling agents–Merchant Brokers–Consumers:**

In this channel, the remaining 70 respondents out of 229 belonged to this category wherein in indirect channel was preferred. During the course of our discussion with these respondents we have come to the conclusion that this type of channel was preferred in respect of marketing of tender coconuts. Out of seventy respondents, 59 respondents were depending mainly on marketing of tender coconuts. Out of seventy respondents, 59 respondents we have come to the conclusion that this type of channel was preferred. During the course of our discussion with these respondents we have come to the conclusion that this type of channel was preferred. During the course of our discussion with these respondents we have come to the conclusion that this type of channel was preferred. During the course of our discussion with these respondents we have come to the conclusion that this type of channel was preferred. 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in price results in decreased cash inflow. The respondents were of the view that middleman shall be dispensed and only direct channel shall be preferred.

**Farmers (Individuals)–Pooling agents–Consumer (Indirect channel):**

The remaining 12 respondents, came under this channel. It is paradoxical to note that even large growers many a time depend on indirect channel, though, there is existence of direct channel. The reasons attributed by the respondents are listed below:

- Buyers never depends upon single supplier
- Grower never wishes to be under the control of a consumer
- Pooling agents are more reliable than the wayward consumers in respect of price and consumption.

Though many respondents who are at present depending on the indirect channel, there is gradual shift towards direct channel because of the following reasons:

- Better price
- Timely plucking of fruit
- Increased yield
- Of late, middlemen are becoming greedy and dishonest

We, therefore, feel that though, the middlemen act as a welding factor, their presence becomes most significant lonely in respect of growers who are either busy or lacking market skills and information.

**Marketing cost of coconuts:**

The cost of marketing of coconuts involved in moving the produce from the point of production to the point of consumption *i.e.*, the cost of performing the various marketing functions and of operating various agencies, *i.e.*, transportation, storage, loading and unloading most importantly commission and others. When it comes to market functionaries, the marketing cost involved extra margins of traders, market fee, labour cost, further transportation, grading etc. Marketing cost differs from person to person, place to place and time to time.

The analysis of the cost of marketing of nuts is carried out in two stages:

- The marketing margins are computed for the full coconut year, in order to assess the average share of growers and intermediaries and
- Monthly market margins are calculated to deserve seasonal pattern of such margins.

The relative share of growers and marketing cost in the total realization of coconuts is given in the following Table 4.

Table 4 shows that the marketing cost under both the channels of distribution. It is observed that under direct channel, marketing cost was very high in respect of companies with 18 per cent of total realization. Further, in indirect channel also marketing cost was very high in respect of companies. The reasons for low marketing cost in respect of individuals and firms are proximity of the market, less quantity dealt with and lesser dependency on intermediaries.

**Suggestions:**

- Central and State Governments should establish Coconut counters in all village hobilies.
- The Government should extend the crop insurance scheme to coconut cultivation particularly so that the interest of the small coconut garden owners are protected in the event of crop failure.
- The Government to provide subsidizing the total

**Table 4 : Marketing cost of for coconut 2009**

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Direct channel</th>
<th>Indirect channel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Individuals</td>
<td>Firms</td>
</tr>
<tr>
<td>Proceeds from the sale of coconuts (Growers share)</td>
<td>4,000</td>
<td>4,000</td>
</tr>
<tr>
<td><strong>Marketing cost</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plucking</td>
<td>350</td>
<td>420</td>
</tr>
<tr>
<td>Dehusking</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>Transportation</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Market fee</td>
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<td>-</td>
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<td>Carriage outward</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Brokaraage</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other expenses</td>
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<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>580</td>
<td>650</td>
</tr>
<tr>
<td>Percentage of marketing cost to total proceeds</td>
<td>14.5</td>
<td>16.25</td>
</tr>
</tbody>
</table>

Source: Personal enquiry notes
cost of cultivation from the date of seedling to the date of commercial production.

– The Government to provide financial assistance at concessional rates of interest in order to insulate them from the clutches of these market intermediaries.

– Improvement in domestic market channels would increase efficiency in process of market transportations and helps to maintain quality of the produce; joint efforts by growers and marketing functionaries will improve efficiency in marketing channels and reduce the cost substantially.

– At Institutional level also, coordinated approach among the marketing agencies would avoid overlap and resolve several marketing issues.

– Involvement of growers in export promotion has been minimal in India, which is not in conformity with the trends world over. Region specific export facilitation centres could be developed considering the concentrations of production of coconut in Karnataka.

Conclusion:

Currently, India stands third in the list of the maximum coconut producing countries of the world. Coconut area is distributed in 18 states and three union territories under different agro-climatic conditions. The coconut crop is grown in all the districts of the Karnataka state. The productivity of coconut in the state is considered as lowest when compared to other neighboring states. The government should make all possible efforts to provide the farmers with high-yielding varieties and hybrids, manures, fertilizers, pest management inter-cultivation facilities and adequate irrigation. It should also focus on product diversification and market expansion. Improvement in domestic market channels would increase efficiency in process of market transportations and will help to maintain quality of the produce. Joint efforts by growers and marketing functionaries will improve affiance in marketing channels and reduce the cost substantially.

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COCONUT PRODUCTION & MARKETING IN INDIA : A CASE OF CHITRADURGA DISTRICT